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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,638	08/29/2001	Takahiro Nakayama	500.40580X00	5603
20457	7590	10/17/2006	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			PHAM, THANHHA S	
			ART UNIT	PAPER NUMBER
			2813	

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/940,638

Applicant(s)

NAKAYAMA ET AL.

Examiner

Thanhha Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-6,8-10 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8-10 and 21-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

This Office Action is in response to Applicant's Amendment dated 10/19/2005.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claims 1, 3-6, 8-10 and 21-26, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

► With respect to claims 1 and 6, it is not clear whether or not "a light-emitting molecule" is a portion of the "at least two kinds of spin conversion materials". Applicant is respectfully to clarify. If "a light-emitting molecule" is not one of the "at least two kinds of spin conversion material", Applicant is respectfully to clarify specifically the "at least two kinds of spin conversion materials" and "a light-emitting molecule" that are intended be claimed.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

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applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**2. Claims 1, 3-6, 8-10 and 21-26, as being best understood, are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wanatabe et al [US 6,602,618].**

**\*\*\*Notice:** *This rejection is based on a situation that process limitation in independent claim 6 "...formed by simultaneous vapor deposition" does not carry weight in a claim drawn to structure because distinct structure is not necessarily produced. See In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985). In addition, a "product by process" limitation is directed to the product per se, no matter how actually made, in re Hirao, 190 USPQ 15 and 17 (footnote 3). See also In re Brown, 173 USPQ 685 (CCPA 1972); In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324 (CCPA 1974); In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90; and In re Marosi et al., 218 USPQ 289 (Fed. Cir. 1983); all of which made clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product by a new method is not patentable as a product, whether claimed in "product by process" claims or not. "Even though product-by[-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted).*

► With respect to claims 1, 4- 6, 9-10, 21-22 and 25-26, Wanatabe et al (fig 1, cols 1-25) discloses the claimed electroluminescent film device having a light-emitting layer (4, col 4 lines 28-35 & col 1 lines 30-39) where an excited state generated by electron-hole recombination is utilized for photon generation, in which device the light-emitting layer (4, col 13 lines 15-20 & col 24 lines 59-67) comprises:

a singlet-utilizing material wherein the singlet utilizing material is CBP (col 24 lines 59-60) [claims 1, 6 & 25-26]; and

at least two kinds of spin conversion materials (Ir(ppy)<sub>3</sub> & PtOEP, cols 13 lines 15-20 & col 24 lines 59-67) wherein a light emitting molecule (PtOEP) constituting one of the at least one of two kinds of spin conversion material, wherein one of the spin conversion material is Ir(ppy)<sub>3</sub> and the light emitting molecule is PtOEP, wherein the light

emitting molecule is a molecule in which a heavy metal atom is bonded to or coordinated to an organic material (*Pt in PtOEP is the heavy metal atom being bonded to or coordinated to the organic material*) wherein the heavy metal atom in the light emitting molecule is Ir or Pt **[claims 1, 4-6, 9-10]**.

► With respect to claims 3, 8 and 23-24, each of the spin conversion materials (Ir(ppy)<sub>3</sub> & PtOEP) of Wanatabe et al is a material in which the quantum number of orbital angular momentum and the quantum number of excited state spin are convertible into each other by their interaction and wherein each spin conversion material is a molecule in which a heavy metal atom is bonded to or coordinated to an organic material), wherein the heavy metal atom is Ir or Pt.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1, 3-6, 8-10, 21-26 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhha Pham whose telephone number is (571) 272-1696. The examiner can normally be reached on Monday and Thursday 9:00AM - 9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thanhha Pham

A handwritten signature in black ink, appearing to read 'THANHHA S. PHAM', with a horizontal line drawn underneath.

THANHHA S. PHAM  
PRIMARY EXAMINER